

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Reto SCHOEB

Application No.: (not yet assigned)

Filed: (herewith)

For: A METHOD AND A PUMP
APPARATUS FOR THE GENERATION
OF AN ADJUSTABLE,
SUBSTANTIALLY CONSTANT
VOLUME FLOW OF A FLUID AND A
USE OF THIS METHOD

Examiner:

Art Unit:

PRELIMINARY AMENDMENT

San Francisco, CA 94111

August 12, 2002

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination of the above-referenced application, please enter the following amendments and remarks.

IN THE CLAIMS:

Please substitute the following amended, clean version of the claims (a marked-up version of the changes to the claims is attached to this Amendment):

1. A method for the generation of an adjustable, substantially constant volume flow of a fluid by means of a pump apparatus in which the fluid (5) is forwarded by the pump apparatus (1) from a reservoir (2) into a flow connection (4), characterised in that a rotary pump (1) is used as the pump apparatus and the rotary pump (1) is operated at an efficiency which is less than half the maximum efficiency (η_{\max}) of the rotary pump (1).

2. A method in accordance with claim 1, wherein the rotary pump (1) is operated at at most twenty percent of its maximum efficiency (η_{\max}).

3. (Amended) A method in accordance with claim 1, wherein the fluid (5) is forwarded through the flow connection (4) to a dispensing apparatus (6), with the total flow resistance of the flow connection (4) and of the dispensing apparatus (6) being selected such that its mean value is substantially larger than the fluctuations during operation.

4. (Amended) A method in accordance with claim 1, wherein the fluid (5) is forwarded through the flow connection (4) to a dispensing apparatus (6), with the total flow resistance of the flow connection (4) and of the dispensing apparatus (6) being selected such that the pressure drop over the total flow resistance is substantially larger than the pressure fluctuations at the dispensing apparatus.

5. (Amended) A method in accordance with claim 1, wherein the fluid (5) is forwarded through the flow connection (4) to a dispensing apparatus (6), with the total flow resistance of the flow connection (4) and of the dispensing apparatus (6) being selected such that the pressure drop over the total flow resistance is substantially larger than pressure changes at the inlet of the rotary pump.

6. (Amended) A method in accordance with claim 1, wherein the flow resistance of the flow connection (4) can be changed and is matched to the fluid (5) to be forwarded.

7. (Amended) A method in accordance with claim 1, wherein the volume flow is only set by the speed of rotation of the rotary pump (1).

8. (Amended) A method in accordance with claim 1, wherein an ON/OFF valve (8) is provided in the flow connection (4) or at the dispensing apparatus (6).

9. (Amended) A method in accordance with claim 1, wherein the fluid (5) is at least partly recirculated into the reservoir (2).

10. (Amended) A method in accordance with claim 1, wherein the rotary pump (1) has an integral rotor (10) and is designed as a bearing-free motor.

11. (Amended) Use of a method in accordance with claim 1 for the transportation of suspensions, in particular for the transportation of slurry, especially in a CMP process.

12. (Amended) Use of A method in accordance with claim 1 for the determination of the viscosity of a fluid.

13. A pump apparatus for the generation of an adjustable, substantially constant volume flow of slurry in a chemical-mechanical polishing process (CMP), characterised in that the pump apparatus is designed as a rotary pump (1).

14. A pump apparatus for the generation of an adjustable, substantially constant volume flow of a coating fluid, for example, photosensitive resist, characterised in that the pump apparatus is designed as a rotary pump (1).